



## INSTRUCTION MANUAL

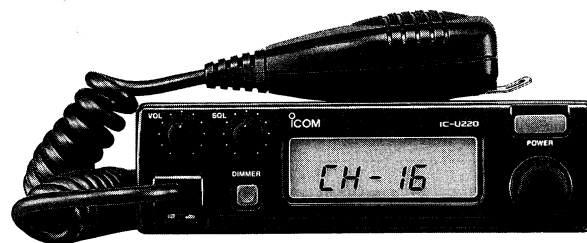
VHF TRANSCEIVER

# IC-V220

UHF TRANSCEIVER

# IC-U220

**MASTER**  
Do Not Remove  
From Tech Support Area



Icom Inc.

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## IMPORTANT SAFETY PRECAUTIONS

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**READ ALL INSTRUCTIONS** carefully and completely before using the transceiver.

**SAVE THIS INSTRUCTION MANUAL!**

This instruction manual contains important safety and operating instructions for the **IC-V220** and **IC-U220**.

**NEVER** connect the transceiver to an AC outlet.

**NEVER** connect the transceiver to a 24 V DC car battery. Only 12 V DC car batteries can be used.

**NEVER** allow children to touch the transceiver.

**NEVER** expose the transceiver to rain, snow or any liquids.

**NEVER** disassemble the transceiver. Incorrect reassembly may result in a fire hazard or electric shock.

**NEVER** place the transceiver where normal operation of the vehicle may be hindered or where it could cause bodily injury.

**NEVER** place the transceiver in excessively humid or dusty environments, or in direct sunlight.

**NEVER** use the transceiver if it is covered by objects which impede heat dispersal.

**NEVER** use an accessory which Icom does not sell or recommend, as it could result in a fire hazard or electric shock.

**AVOID** using or storing the transceiver in extreme cold (under  $-30^{\circ}\text{C}$ ;  $-22^{\circ}\text{F}$ ) or extreme heat (over  $+60^{\circ}\text{C}$ ;  $+140^{\circ}\text{F}$ ).

**BE CAREFUL!** The heatsink will become hot when operating the transceiver continuously for long periods.

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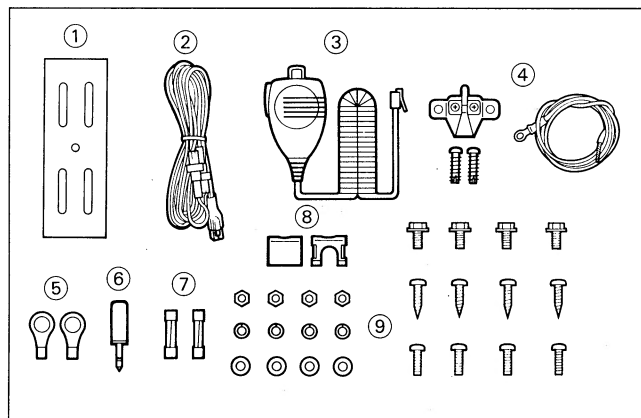
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## FOREWORD

Thank you for choosing the Icom **IC-V220 VHF TRANSCEIVER** or the **IC-U220 UHF TRANSCEIVER**. The **IC-V220** and **IC-U220** are compact and easy-to-operate transceivers designed with Icom's state-of-the-art technology.

If you have questions regarding the operation of the transceiver, please feel free to contact your nearest Icom Dealer or Service Center.

## UNPACKING



### Accessories included with the IC-V220/IC-U220: Qty.

① Mounting bracket .....	1
② DC power cable (OPC-044B) .....	1
③ Microphone (EM-65) .....	1
④ Microphone hanger .....	1 set
⑤ Cable lugs .....	2
⑥ External speaker plug (3.5 $\phi$ ) .....	1
⑦ Fuses (15 A) .....	2
⑧ Microphone connector covers .....	1 set
⑨ Mounting screws, nuts and washers .....	1 set

# PANEL DESCRIPTION

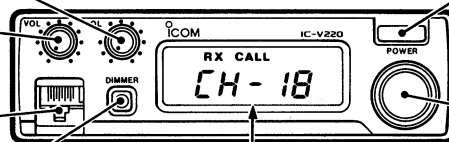
## ■ Front panel

**SQUELCH CONTROL [SQL]**  
Sets the squelch threshold level.

**VOLUME CONTROL [VOL]**  
Adjusts the audio output level.

**MIC CONNECTOR JACK**  
Connects the supplied microphone.

**DIMMER SWITCH [DIMMER]**  
Selects the intensity of the function display.



**POWER SWITCH [POWER]**  
Turns power ON and OFF.

**CHANNEL SELECTOR**  
Selects an operating channel.

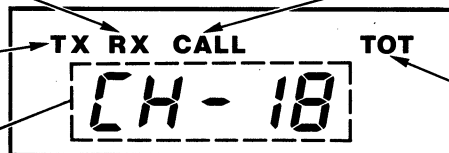
**FUNCTION DISPLAY**

## ■ Function display

**BUSY INDICATOR [RX]**  
Appears when the selected channel is busy.

**TRANSMIT INDICATOR [TX]**  
Appears while transmitting.

**CHANNEL INDICATOR**  
Shows the operating channel.

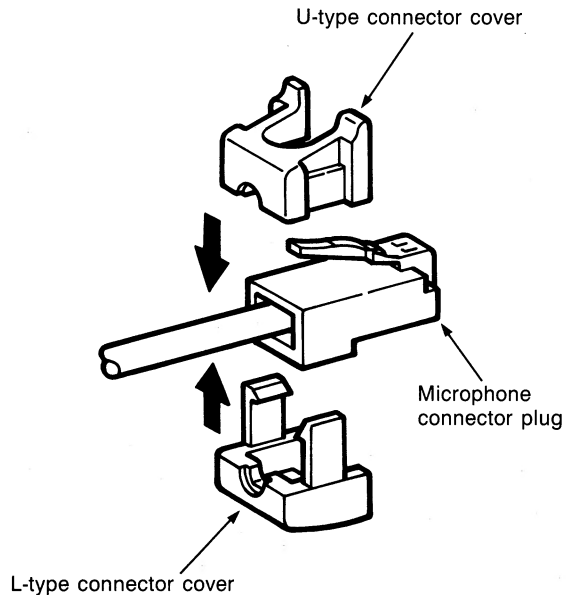


**CALL INDICATOR [CALL]**  
Appears when you are called.

**TIME-OUT TIMER INDICATOR [TOT]**  
Appears when continuous transmission time has exceeded the TOT time.

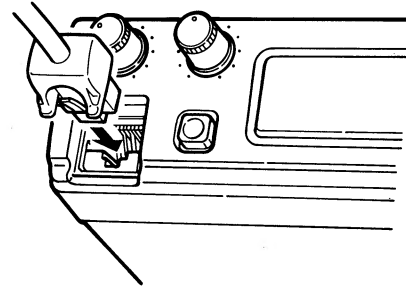
## ■ Microphone connector

Before connecting the microphone, attach the supplied U-type and L-type connector covers to the microphone connector plug as shown in the figure below.

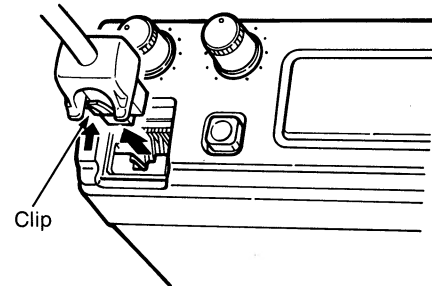


## ■ Microphone connection

Insert the microphone connector plug into the microphone connector jack as shown in the figure below.



To remove the microphone connector plug, push and hold the clip of the plug, then pull out the plug as shown in the figure below.

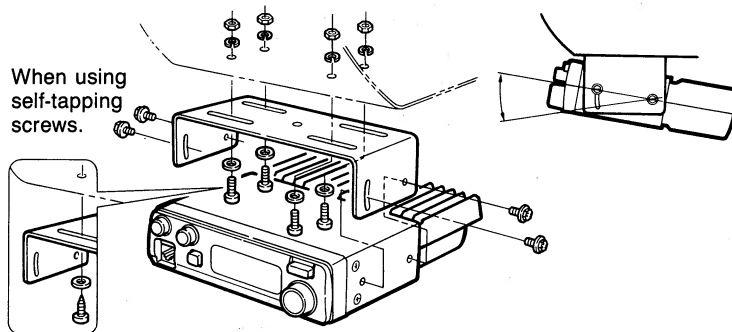


## 2 INSTALLATION AND CONNECTIONS

### ■ Main body installation

1. Select a location that can support the weight of the transceiver, and does not interfere with your driving in any way.
2. Place the mounting bracket in a suitable mounting location and mark the screw holes on the bracket. Make sure the controls and switches can be reached easily.
3. Drill the holes and install the bracket; then, mount the transceiver on the bracket as shown in the figure below.
4. Adjust the angle for the clearest view of the function display.

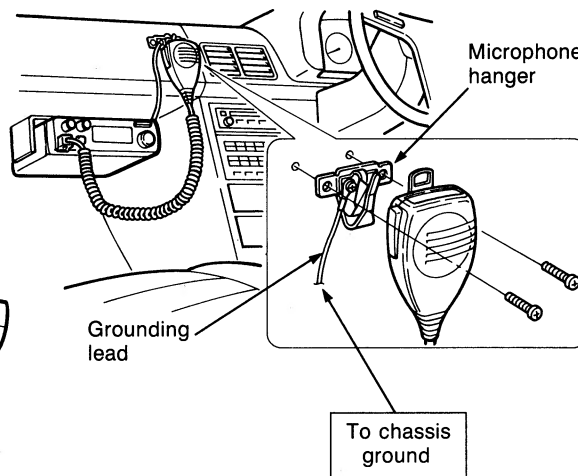
**DO NOT** install the transceiver where hot or cold air blows directly onto it.



### ■ Microphone hanger

Install the microphone hanger with the supplied grounding lead at the desired position near the transceiver. The other terminal of the lead must be grounded.

This microphone hanger functions as a monitor switch. When the microphone is off the hanger, CTCSS or DTCS squelch is opened, and undesired signals may be heard.



## ■ Connections

### 1. ANTENNA

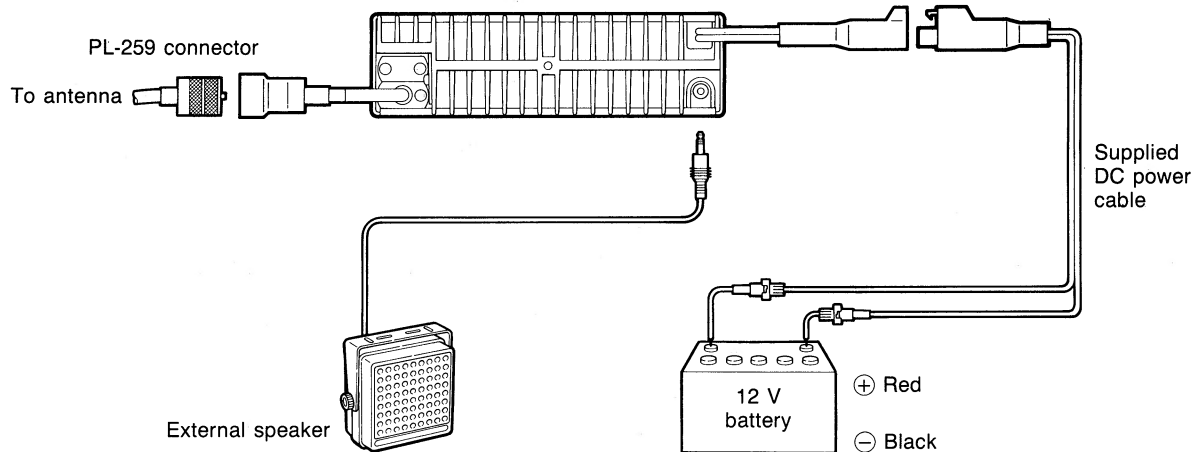
Ask your dealer about the best location and antenna selection.

### 3. EXTERNAL SPEAKER

For clearer audio reception an optional external speaker can be used, if you desire.

### 2. DC POWER

Pay attention to polarities. **NEVER** connect a 24 V DC battery directly. This may damage the transceiver. When using the transceiver with AC, the PS-200 DC POWER SUPPLY is available.



### ■ General

- Frequency coverage : IC-V220 150 ~ 174 MHz  
IC-U220 450 ~ 470 MHz  
IC-U220-1 410 ~ 430 MHz  
IC-U220-3 470 ~ 490 MHz  
IC-U220-4 490 ~ 512 MHz  
IC-U220-5 400 ~ 420 MHz
- Mode : FM (16K0F3E)
- Number of operating : Up to 18  
channels
- Usable temperature :  $-30^{\circ}\text{C} \sim +60^{\circ}\text{C}$ ;  
range  $-22^{\circ}\text{F} \sim +140^{\circ}\text{F}$
- Frequency stability :  $\pm 0.0005\%$
- Power supply : 13.8 V DC  $\pm 15\%$   
requirement
- Current drain :

		IC-V220	IC-U220
Transmit	High	6.0 A	7.0 A
	Low	3.2 A	4.0 A
Receive	Squelched	450 mA	500 mA
	Max. audio output	1.1 A	1.1 A

- Dimensions : 140(W)  $\times$  40(H)  $\times$  160(D) mm;  
5.5(W)  $\times$  1.6(H)  $\times$  6.3(D) in  
(projections not included)
- Weight : 1 kg; 2.2 lb

### ■ Transmitter

- Output power : High 25 W  
Low 5 W  
(Output power varies depending  
on the selected channel.)

### ■ Receiver

- Sensitivity : 0.2  $\mu\text{V}$  for 12 dB SINAD
- Squelch sensitivity : 0.2  $\mu\text{V}$  at threshold
- Audio output power : 4 W at 5% distortion with a 4  $\Omega$   
load

**All stated specifications are subject to change without notice or obligation.**

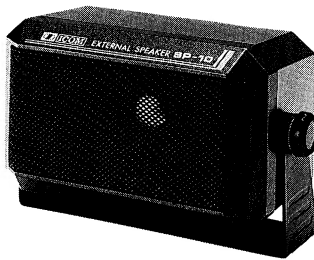


## • SP-5 EXTERNAL SPEAKER



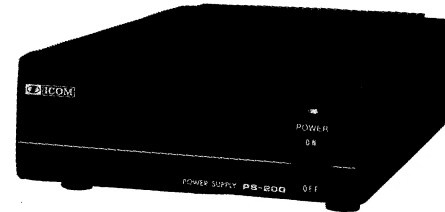
A heavy-duty external mobile speaker.  
Input impedance: 4  $\Omega$     Max. input power: 5 W

## • SP-10 EXTERNAL SPEAKER



A compact external mobile speaker.  
Input impedance: 4  $\Omega$     Max. input power: 5 W

## • PS-200 DC POWER SUPPLY



For using the transceiver with AC.  
Output voltage: 13.8 V DC    Max. current drain: 8 A

## • EM-65 HAND MICROPHONE

Same type as supplied with the IC-V220/U220.

## • EM-69 HAND MICROPHONE

A heavy-duty microphone equipped with a DTMF tone encoder and DTMF memories.

## • OPC-044B DC POWER CABLE

Same type as supplied with the IC-V220/U220.

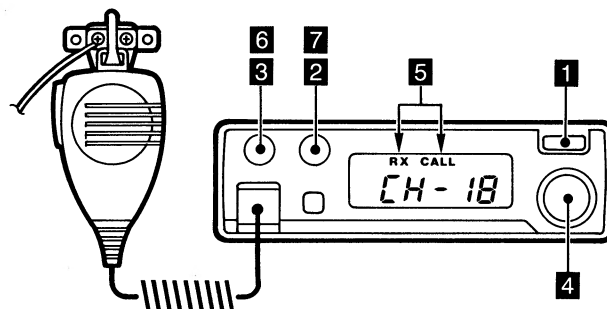
## • UT-64 DTCS ENCODER/DECODER UNIT

Ensures advanced, quiet standby and selective calling.

### ■ Receiving

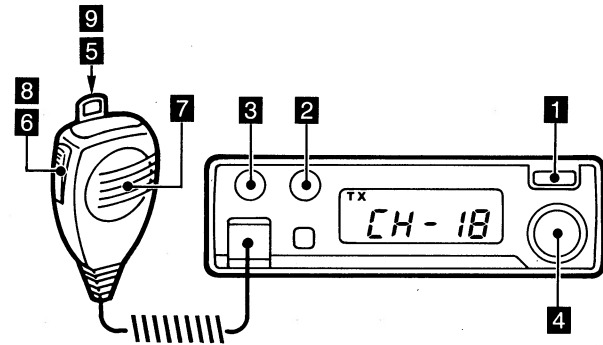
- 1 Push [POWER] to turn power ON.
- 2 Rotate [SQL] max. clockwise.
- 3 Set [VOL] to the 10 o'clock position.
- 4 Select an operating channel with the CHANNEL SELECTOR.
- 5 When a call is received, "RX" and "CALL" appear on the function display and a receive signal is emitted from the speaker.
  - Only "RX" is indicated when the channel is busy.
- 6 Rotate [VOL] to adjust the audio output level.
- 7 Rotate [SQL] counterclockwise when receiving weak signals.

**NOTE:** The microphone should be hung on the microphone hanger while you wait for a call. If not, undesired signals may be heard.



## ■ Transmitting

- 1 Turn power ON.
- 2 Set [SQL] max. clockwise.
- 3 Set [VOL] to the 10 o'clock position.
- 4 Select an operating channel with the CHANNEL SELECTOR.
- 5 Take the microphone from the microphone hanger.
  - When you pick up the microphone, undesired signals may be heard. If this is the case, transmit after the signals disappear.
- 6 Push and hold the PTT (Push-To-Talk) switch on the microphone.
  - "TX" appears on the function display.
- 7 Speak into the microphone.
  - **DO NOT** hold the microphone too close to your mouth or speak too loudly. This may distort the signal.
- 8 Release the PTT switch to receive.
- 9 After completing the communication, return the microphone to the microphone hanger.



**NOTE:** When "TOT" appears on the function display during transmission, continuous transmission time has exceeded the TOT time and you cannot transmit any more until you release the PTT switch.

**Count on us!**

A-5182S-1US  
Printed in Japan  
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